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09/637,049	08/11/2000	Fan Zhou	FORE-67	7201
7590	03/28/2005		EXAMINER	
Ansel M. Schwartz One Sterling Plaza Suite 304 201 N. Craig Street Pittsburgh, PA 15213			MOORE, IAN N	
			ART UNIT	PAPER NUMBER
			2661	
DATE MAILED: 03/28/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No. **09/637,049**

Applicant(s)

ZHOU ET AL.

Examiner

Ian N Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 7-13 is/are rejected.
- 7) ☒ Claim(s) 6, 14-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. Claims 1-5 and 7-13 are rejected by the new ground(s) of rejection necessitated by the amendment.

### *Claim Objections*

2. Claims 1, 2, 5, 6, 7, 10, 14 and 21 are objected to because of the following informalities:
  - **Claim 1** recites, “sends” in line 4, and for consistency it is suggested to change to “send”.
  - **Claim 1** recites, “...sending stripes of corresponding fragments of each packet to each of the fabric...placing a length indicator with **the packet...**” in line 6 and 9. **Claim 2** recites, “...receives the stripes of the packet fragments from the port cards, and appends packet length information to the beginning of the packet in the length indicator...” in page 2, line 2 and page 3, line 1. **Claim 5** recites, “...extracts the packet length information from each stripe of fragment of packet to determine when each packet...” in line 3-4. **Claim 6** recites, “...removes the packet length information from each packet sending any stripes of fragments of each packet...” in line 2-3. **According to claim 1 and 2**, the packet length information is appended to the beginning of the packet (i.e. an intact or whole packet). **According to claim 5**, the packet length information is extracted from each stripe (i.e. a fragmented portions of a packet). **According to claim 6**, the packet length information is removed from each packet (not stripes). Thus, it is unclear how one appended the

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length information at the beginning of the packet, and yet extracting the same length information from the stripes of the packet. In particular, it is unclear where exactly the length indicator is appended: to the whole/entire packet, or to each strip.

According to the specification, the packet is broken into stripes or fragments at the port card and sends to the fabric. The fabric receives the stripes or fragments of the packet, not an intact or whole packet. Thus, inside the fabric, only the stripes exist since each packet is no longer an intact/ whole packet. The examiner is suggesting the applicant to clarify the inconsistency accordingly, and no new matter should be entered.

- **Claim 7**, recites “sending **each of the packet as stripes**...appending length indicator to each packet...” in lines 4 and 10. **Claim 10** recites, “...appending the length indicator to **each packet**...” line 2. **Claim 14**, recites “...removing the packet length information with the separator...” in line 2. These claims are also objected for the same reason as stated above since they disclose the same unclear limitation.
- **Claim 21** recites, “**an unstriper**” in line 3. For clarity, it is suggested to change to “**the unstriper**” in order to properly reflect already recited “an unstriper” in claim 19, line 2.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-5 and 7-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sindhu (U.S. 6,493,347) in view of Isono (U.S. 5,072,440).

**Regarding Claim 1**, Sindhu discloses a switch for switching packets (see FIG. 2B, router 20), each packet having a length (see FIG. 3C and 14, a packet have a length) comprising:

a port card (see FIG. 2B, multi-function multiports; see col. 5, lines 60-61) receive packets of different lengths (see col. 6, lines 58-65; see col. 10, lines 55-57; variable length) from (see FIG. 2B, Input section) and send packets (see FIG. 3B, output section) to a network (see FIG. 2A, a packet switching network); see col. 5, lines 50 to col. 6, lines 9); and

fabric (see FIG. 2B, a combined system of input switch A1 100, global data buffer memory 104, Controller 110, and output switch A2 102) connected to the port card which switch the packets (see col. 5, lines 56-65),

the port cards sending stripes of corresponding fragments of each packet (see FIG. 3a, Data Handler 302) to the fabric (see col. 6, lines 57-65; Data Handler 302 of the multiport divides the packets received onto fix length cells and send to the input switch A1),

the fabric having a memory mechanism having a memory (see FIG. 2B, global data buffer memory 104) which has a wide cache buffer structure (see FIG. 2B, a buffer contains memory banks (i.e. wide)) in which multiple packets are put into one word (see FIG. 2B, Memory Bank 105; see col. 12, lines 6-67; packets from the input section are stored into one word),

the fabric having a mechanism for determining the length of each packet received by the fabric (see FIG. 5A, the input switch 100 and controller 106; see col. 7, lines 1 to col. 8, lines 19; the input switch 100 and the controller determines the length/size of the packet) and placing a length indicator (see FIG. 5A, pointer indicator 504; or see FIG. 8, Read 804 and/or write address 806; or see FIG. 14, packet length 1410) with the packet (see FIG. 5B, the packet 454 or 456; or see FIG. 8, the packet 800; determine the length of each packet in order to store in the memory) so when the packet is stored in the memory of the memory mechanism (see FIG. 11B, storing packets in the memory 104), the determining mechanism can identify from the length indicator how long the packet is and where the packet ends in the memory of the memory mechanism (see col. 7, lines 60-67; see col. 8, lines 49-67; see col. 9, lines 1-44; see col. 10, lines 59 to col. 11, lines 16; 60 to col. 12, lines 6; note that the indicator/pointer/key/length determines how long the packet is and where the packet end in the memory by identifying where it is written into the memory bank (write address) and where it is read from the memory bank (write address), thereby, identifying the length of each packet and location of each packet.

Sindhu does not explicitly disclose fabrics. However, Isono teaches a switch (see FIG. 1, switching system) for switching packets comprising port cards (see FIG. 1, conversion modules CNV 20 and output modules OM 50; also see FIG. 2), and fabrics (see FIG. 1, SRM network switch 30 and 40; see FIG. 2) connected to the port cards which switch the packets (see col. 3, lines 40-59), the port card sending each packet to each of the fabric (see col. 3, lines 50 to col. 4, lines 60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide second/double

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fabric/switch module, as taught by Isono in the system of Sindhu, so that it would provide an improved self-routing system in which the self-routing module network is doubled so that reliability of the system is enhanced and maintenance operation is improved; see Isono col. 1, line 65 to col. 2, lines 53.

**Regarding Claim 2**, Sindhu discloses wherein the determining mechanism includes an aggregator (see FIG. 3a, Data Handler 302) which receives packet fragments from the port card, determines the packet length and appends packet length information to the beginning of the packet in the length indicator (see col. 8, read and write address are appended at the beginning of the packet; see col. 7, lines 60-67; see col. 8, lines 49-67; see col. 9, lines 1-44; see col. 10, lines 59 to col. 11, lines 16; 60 to col. 12, lines 6; or FIG. 14, packet length 1410 is appended at the beginning of the packet; see col. 17, lines 5-10).

**Regarding Claim 3**, Sindhu discloses wherein the memory mechanism includes a memory controller (see FIG. 2B, global data buffer memory 104), the aggregator sending the packet with the packet length information to the memory controller which stores the packet with the packet length information (see FIG. 5A, pointer indicator 504; or see FIG. 8, Read 804 and/or write address 806; see col. 12, lines 6-67; see col. 7, lines 60-67; see col. 8, lines 49-67; see col. 9, lines 1-44; see col. 10, lines 59 to col. 11, lines 16; 60 to col. 12, lines 6; note that the indicator/pointer/key/length determines how long the packet is and where the packet end in the memory by identifying where it is written into the memory bank (write address), and they are stored in the memory with the packet).

**Regarding Claim 4**, the claim, which has substantially disclosed all the limitations of the respective claim 4. Therefore, it is subjected to the same rejection.

**Regarding Claim 5**, Sindhu discloses wherein the fabric includes a separator (see FIG. 2B, output switch A2 102 and see FIG. 15a) which reads the packets from the memory controller (see col. 5, lines 56 to col. 6, lines 29; col. 17, lines 30-51; the output switch A2 reads the packet from the memory banks) and extracts the packet length information from each packet to determine when each packet ends (see FIG. 2B, controller 110 and see FIG. 15A, Result processor 1506 and output processor 1508 determines where the packet ends from addresses (i.e. pointer or location/length indicator); also see FIG. 14, packet length 1410), see col. 13, lines 50 to col. 16, lines 30; col. 17, lines 30-51), and

sends fragments of the packet to the port card (see col. 17, lines 52 to col. 18, lines 5; the fixed packets are transferred back to the multi-function multiports), the port card assembling the packet from the strips of the fragments of the packet port cards receive from the fabric (see FIG. 17A, output section of the multi-function multiport; see col. 14, lines see col. 18, lines 6-14; see col. 20, lines 6 to col. 21, lines 21; the output section of the port reassemble the packet from the fixed size cells).

**Regarding Claim 7**, Sindhu discloses a method (see FIG. 18, method) for switching packets having a length (see FIG. 3C and 14, a packet have a length) comprising the steps of:

receiving a packet of different lengths (see col. 6, lines 58-65; see col. 10, lines 55-57; variable length) at port cards (see FIG. 2B, multi-function multiports; see col. 5, lines 60-61) of a switch (see FIG. 2B, router 20);

sending corresponding fragments of each of the packets as stripes (see FIG. 3a, Data Handler 302) to fabric of the switch from the port cards (see col. 6, lines 57-65; Data Handler



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302 of the multiport divides the packets received onto fix length cells and send to the input switch A1),

receiving the stripes of corresponding fragments of each of the packets at the fabric of the switch (see col. 6, lines 57-65; fixed size cells are received at input switch A1);

measuring the length of the packet at the fabric from the stripes of fragments of the packet received at the fabric (see FIG. 5A, the input switch 100 and controller 106; see col. 7, lines 1 to col. 8, lines 19; the input switch 100 and the controller determines/measures the length/size of the packet);

appending a length indicator (see FIG. 5A, pointer or location/length indictor 504; or see FIG. 8, Read 804 and write address 806; or see FIG. 14, packet length 1410) to the packet (see FIG. 5B, the packet 454 or 456; or see FIG. 8, the packet 800; the read and write address (i.e. pointer or location/length indicator) is attached to the of each packet in order to store in the memory); see col. 7, lines 60-67; see col. 8, lines 49-67; see col. 9, lines 1-44; see col. 10, lines 59 to col. 11, lines 16; 60 to col. 12, lines 6; note that the indictor/pointer/key/length determines how long the packet is and where the packet end in the memory by identifying where it is written into the memory bank (write address) and where it is read from the memory bank (write address), thereby, identifying the length of each packet and location of each packet;

storing the packet with the length indicator in a memory of a memory mechanism (see FIG. 2B, global data buffer memory 104) of the fabric, the memory which has a wide cache buffer structure (see FIG. 2B, a buffer contains memory banks (i.e. wide)) in which

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multiple packets are put into one word (see FIG. 2B, Memory Bank 105; see col. 12, lines 6-67; packets from the input section are stored into one word);

reading the packet from the memory mechanism (see FIG. 2B, output switch A2 102 and see FIG. 15a; see col. 5, lines 56 to col. 6, lines 29; col. 17, lines 30-51; the output switch A2 reads the packet from the memory banks) and

determining where the packet ends from the length indicator of the packet (see FIG. 2B, controller 110 and see FIG. 15A, Result processor 1506 and output processor 1508 determines where the packet ends from addresses (i.e. pointer or location/length indicator); also see FIG. 14, packet length 1410); see col. 13, lines 50 to col. 16, lines 30; col. 17, lines 30-51.

Sindhu does not explicitly disclose fabrics. However, Isono teaches a switch (see FIG. 1, switching system) for switching packets comprising port cards (see FIG. 1, conversion modules CNV 20 and output modules OM 50; also see FIG. 2), and fabrics (see FIG. 1, SRM network switch 30 and 40; see FIG. 2) connected to the port cards which switch the packets (see col. 3, lines 40-59), the port card sending each packet to each of the fabric (see col. 3, lines 50 to col. 4, lines 60). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide second/double fabric/switch module, as taught by Isono in the system of Sindhu, so that it would provide an improved self-routing system in which the self-routing module network is doubled so that reliability of the system is enhanced and maintenance operation is improved; see Isono col. 1, line 65 to col. 2, lines 53.

**Regarding Claim 8**, Sindhu discloses receiving the fragment at an aggregator (see FIG. 3a, Data Handler 302) of the fabric (see col. 7, lines 60-67).

**Regarding Claim 9**, the method claim, which has substantially disclosed all the limitations of the respective switch claim 2. Therefore, it is subjected to the same rejection.

**Regarding Claim 10**, the method claim, which has substantially disclosed all the limitations of the respective switch claim 2. Therefore, it is subjected to the same rejection.

**Regarding Claim 11**, the method claim, which has substantially disclosed all the limitations of the respective switch claim 3. Therefore, it is subjected to the same rejection.

**Regarding Claim 12**, the method claim, which has substantially disclosed all the limitations of the respective switch claim 5. Therefore, it is subjected to the same rejection.

**Regarding Claim 13**, the method claim, which has substantially disclosed all the limitations of the respective switch claim 5. Therefore, it is subjected to the same rejection.

***Allowable Subject Matter***

5. Claim 6 and 14 are objected to as being dependent upon a rejected base claim, the objected base claim, and the objection set forth in paragraph 2, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Claims 15-20 are allowed.

7. Claim 21 is objected to as set forth in paragraph 2, but would be allowable if rewritten to overcome the objection.

***Response to Arguments***

8. Applicant's arguments with respect to claims 1-5 and 7-13 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian N Moore whose telephone number is 571-272-3085. The examiner can normally be reached on M-F: 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau T Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

INM

*J. N. 11*  
3/18/05

*Bob Phunkula*  
**BOB PHUNKULA**  
**PRIMARY EXAMINER**